

CLAIMS

[I claim:]

- 5 Suba
1. A method of treating a gas stream containing an oxidant and carbon particles comprising the steps of:
 - a) introducing the gas stream into a processing chamber,
 - b) exposing the gas stream to microwave energy having a sufficient power and for a sufficient period of time to induce the carbon to react with the oxidant.
 - 10 2. The method of **claim 1** wherein the oxidant is selected from the group consisting of steam and carbon dioxide.
 - 21 3. The method of **claim 1** wherein the microwave energy is provided at a frequency between 500 MHz and 30 GHz.
 - 15 4. A gas processing chamber for treating a gas stream containing an oxidant and carbon particles comprising:
 - a) a gas inlet port for receiving the gas stream from a high temperature processing chamber,
 - b) a gas outlet port for exhausting the processed gas stream, and
 - c) a microwave source for introducing microwave energy into the gas processing chamber having a sufficient power to induce the carbon to react with the oxidant.
 - 20 5. The gas processing chamber of **claim 1** further comprising a microwave waveguide to direct the microwave energy at the gas stream for processing.
 - 25 6. The gas processing chamber of **claim 1** further comprising a reflected microwave power dump for protecting the microwave source from reflected microwave power.
 7. The gas processing chamber of **claim 1** further comprising a window seal to separate the gas stream from the microwave source.